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## Regional policy in Europe

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# Regional Policy in Europe: Subsidiarity or Suprasidiarity? A Case Study on Super-peripheral Economies

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# REGIONAL POLICY IN EUROPE: SUBSIDIARITY OR SUPRASIDIARITY?

A Case Study on Super-peripheral Economies

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## 1. Regional Policy Questions in the New Europe

The completion of the internal EC market, the increasing linkages with EFTA countries and the socio-political and socio-economic accessibility of East European countries have drastically changed the face of European regions. Openness, competitiveness, innovation, infrastructure connections and private-public initiatives have become new magical words in regional development strategies in Europe. All these terms suggest that regional development policy is entering a new stage in which the **indigenous potential** of regions based on self-reliance strategies will come to the fore (cf. Suarez-Villa and Cuadrado Roura 1993).

The new situation in Europe also provokes new policy questions which are directly linked to the three-tier structure of the new Europe, viz. **the competence of various actors involved in regional development policy**: European (i.e., supranational), national (i.e, supraregional) and regional policy-makers. Especially after the Maastricht Treaty and the Danish referendum this question of institutional competence has played an important role in many countries. The fear of a new supranational and bureaucratic authority in Brussels which would take over many responsibilities of lower-level actors has prompted many Europeans to resist the glamour of a new Europe and as a reaction against the widespread 'Europhoria' much attention has been called for sound policy principles based on bottom-up initiatives and decentralisation. The **subsidiarity principle** has consequently become an important institutional paradigm which suggests that the competence for policy initiatives should rest with authorities at the lowest possible decision level, while reasons of efficiency, coherence, equity and standardisation may necessitate a policy coordination at a higher level.

However, the subsidiarity principle leaves many questions unanswered if a **three-tier** supranational - supraregional - regional system is taken into consideration. In this case, the question of subsidiarity (at the lowest possible level) versus suprasubsidiarity (at the top level of policy authorities) becomes an issue of paramount importance, as efficiency and equity objectives can then be treated at three different levels of policy competence. Furthermore, the time scales of policy intervention may be different, ranging from short-term via medium-term to long-term processes. This implies that also the optimal level of policy intervention, seen from the perspective of time scales of policy impacts, has to be taken in consideration. Even though an open and competitive European market may generate much higher benefits than 'non-Europe' would do, the level of European policy decisions may have far reaching consequences for the integration benefits.

It is evident that an open market may create winners and losers: not all firms, households and regions will be better off after an economic integration in Europe (see also Table 1, taken from Camagni 1991). Clearly, various policies can be developed to alleviate the (relative) costs of integration, such as industrial, infrastructural, educational and regional policy, but it is clear that regional disparities - a persistent phenomenon in Europe - are likely to remain after the completion of the internal market. An illustration can be found in Map 1, taken

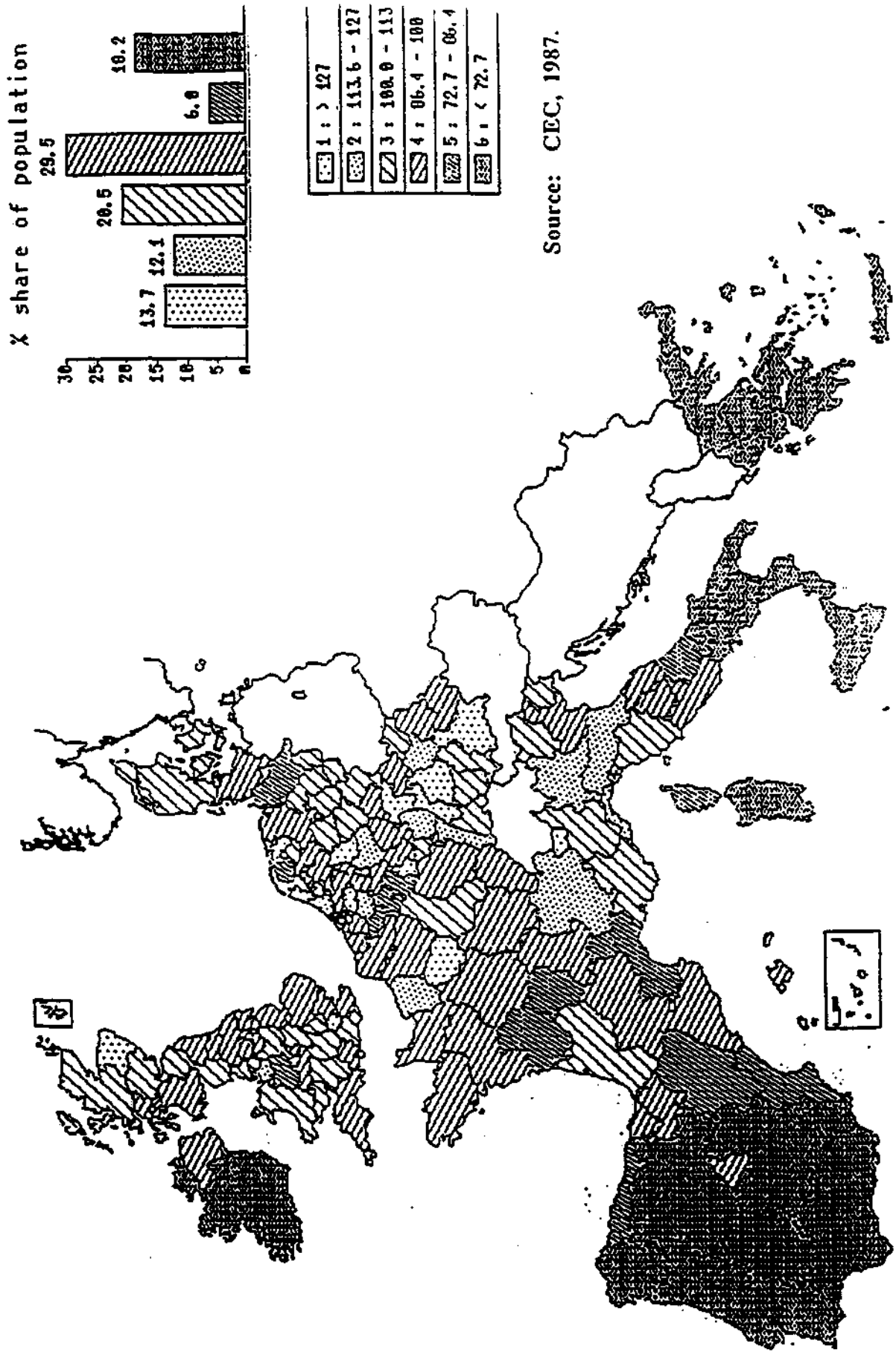
| | WINNERS | | MIXED | LOSERS | |
|---|---|---|---|---|---|
| | LEADERS | DEVELOPING | EVIDENCE | CRISIS | DIVERGING |
| Italy | Abruzzi, Molise | | Puglia, Sicilia | Basilicata, Sardegna | Calabria Campania |
| France | | | | | Corse |
| Ireland | East (Dublin), South-East, South-West | West, Midwest North-East | | Northern Ireland | Donegal & NW. Midlands |
| Greece | | Eastern Maced Ionian Islands, South, Aeg.Isl. | Central Maced, Crete | Central Greece, Attica | Western Maced, Thessaly, Western Gr., Pelopon., Epirus, North.Aegean Isl. |
| Spain | Com. Valenciana, Murcia | Galicia, Andalucia, Canarias | Asturias, Castilla La Mancha, Castilla & Leon, Extremadura | | |
| Portugal | Lisboa and Tejo Val. | Centro | Algarve | | Norte, Alentejo |

Table 1. Performance of EC Objective One Regions in the 1980s: winners and losers

Various structural funds have been created by the EC to alleviate sectoral and regional imbalances; the composition of the EC budget for the year 1986 can be found in Table 2.

| | |
|---|---|
| Agriculture and fishing | 65.5 % |
| Other sectoral policies | 2.3 % |
| Social Fund | 7.2 % |
| Regional Fund | 6.8 % |
| Mediterranean Programmes | 0.4 % |
| Development and Cooperation | 3.3 % |
| Administration | 5.2 % |
| Repayments | 9.2 % |
| Total | 100 % |

Table 2. Composition of EC Budget (1986)




Map 1. Regional per capita GDP 1985: Level 2 regions.
EC 12 = 100

from Camagni et al. (1990), which shows large differences in per capita GDP in EC regions. For instance, per capita income in the richest regions in Germany is approximately 3.5 times that of the poorest regions in Greece.

The fact that the Regional Fund has only 25 percent more financial resources than the EC administrative cost is an alarming figure, which can only be weakened by the fact that the overall EC budget amounts only to approximately one percent of the entire EC GDP.

Nevertheless, the benefits of European integration may be significant, not only at sectoral levels but also at regional levels, in particular where integration effects do not only lead to **static** allocation effects (e.g., economies of scale, comparative advantages and specialisation benefits), but more importantly to **dynamic** re-allocation ('generative') effects (e.g., innovation, synergetic benefits) (see also Nijkamp 1991). Following Camagni et al. (1990) such effects may emerge at various levels:

- macro-economic: rise in national investments and output, as well as in employment and income per capita.
- meso-economic: expansion of internal markets through intra-industry trade and sectoral growth.
- micro-economic: benefits through firm's specialisations and increase of the service sector, often induced by spatial relocation.

Later on in this paper we will use a similar typology of effects to investigate the various scenarios for regional development, seen from the viewpoint of the above mentioned three levels of policy competence.

The above observations point at serious questions on the interregional distribution of benefits of a unified Europe, as it seems plausible that the strong, central and highly competitive regions will become the winners in the new Europe, absorbing the lion's share of the economic activity at the expense of the peripheral, weaker regions. This issue of efficiency versus equity is even more important, as the efficiency-equity dilemma is likely to generate a competition which may be at odds with environmental quality. Therefore, the following questions will likely emerge in the European setting of the 1990s:

- the distribution of integration benefits between nations and regions
- the degree of socio-economic disparity between central and peripheral areas
- the threat to ecologically sustainable economic development at both regional and national scales
- the development of proper policy strategies at supra-national, supra-regional and regional levels which alleviate the conflicts between economic efficiency, social equity and environmental conservation.

In light of these issues, this paper aims to develop a methodology for an integrated policy strategy which serves to find a compromise between the triple-layer

European regional policy competence, with the purpose to strengthen the cohesion within the EC by doing justice to the three main objectives of efficiency, equity and environmental quality. The methodology will be illustrated by means of an empirical case study, in which the development of the super-peripheral island of Lesbos will be assessed against the background of the socio-economic development of Greece and the socio-economic potential offered by a unified Europe.

## 2. European Integration, Interregional Disparities and Peripherality

The completion of the internal EC market will likely aggravate the problem of socio-economic disparities between regions in the EC. It is generally expected that the relatively weak competitive position of peripheral regions will prevent them from a full participation in the process of European integration, so that the integration gains will mainly end up in the central regions in Europe (cf. Gaudard 1971; Ratti and Alberton 1993). For example, Quévit (1991) states: "The main effect of the attainment of the European market will be the concentration of economic activity in a limited number of locations" (p.34).

A situation of interregional convergence and divergence after a market integration will depend on:

- the degree of cost reduction in each region as a result of economies of scale and market expansion
- the efficiency rise in firms as a result of rationalisation and of a price policy that is more in accordance with production costs in a competitive market
- the degree of industrial restructuring and specialisation as a result of more pronounced comparative advantages in an integrated market
- the degree of product and process innovation following investments in R&D as a competitive tool in an integrated market.

In the context of the rise or decline of interregional disparities, the Williamson hypothesis is interesting and relevant (see Williamson 1975).

The Williamson hypothesis distinguishes two stages in the development of interregional growth rate disparities. The initial stage is characterized by divergence, whereas the second is the convergence stage. In this theory the American 'north-south problem' is used to describe the phenomenon of regional imbalance and inequality. In the initial stage of national development regional inequality is likely to increase (divergence) due to a number of disequilibrating effects.

Firstly, interregional **labour migration** is likely to be extremely selective, either because of the prohibitive monetary costs of migration (especially in relation to the low levels of income in the southern regions), or because of traditional inertia in the non-urbanized and non-industrialized poor southern regions.

Secondly, the interregional **flow of capital** may perverse as well. Capital might

economies (e.g., better infrastructure, advanced networks, less uncertainties in the north.

Thirdly, the **national or federal government's intention to maximize national** welfare might just lead to an increase (instead of a decrease) of regional inequalities, if an active political strategy in the south is lacking. So the south has to make its voice heard in the political scene in order to balance the current inequalities between the north and the south.

Finally, there may be a **lack of interregional linkages** (e.g., missing networks) in the early stages of national growth as a consequence of which the spatial effects of technological change, social change and income multipliers are minimal.

However, as a result of dynamic processes, such as the decrease of the prohibitive migration costs or the formation of sophisticated capital markets in the southern regions, the disequilibrating effects will in the long run reverse. In this way areas lagging behind will finally succeed in catching up with more developed regions, and hence convergence will occur. Thus, ultimately this theory can be considered as an **equilibrium** approach.

A different approach emphasizes **disequilibrium**. The so called **typhoon principle** plays a central role in this disequilibrium approach. If an external force hits a multiregional system, stronger regions tend to be better off than weaker regions. As such there is an intrinsic tendency towards divergence (Nijkamp 1991). Thus interregional disparities may increase if markets are left to their own forces. In the new internal EC market factor mobility may increase drastically. As a result, production factors like labour and capital will seek their most profitable destination (which is expected to be in the stronger regions). This migration will then cause a cumulative decay of the weaker regions (Quévit 1991). In this framework, the trend to more European cohesion via market forces based on economic integration will aggravate regional imbalances, at least without countermeasures from supraregional or supranational authorities.

A somewhat less defined theory relates the development of interregional differences to the aggregate growth rate of the Community. Indeed we can observe that the fast and constant convergence until the first oil crisis in 1973 was coupled with a period of high and long lasting economic growth of the European economy at large. The more diverging development pattern in the subsequent period occurred during a serious reversion to lower growth rates of the Community. This implies that higher growth rates benefit the weaker regions while they will be hit hardest in the case of sluggish economic growth (Quévit 1991).

Starting from such a centrality concept we can expect economic activities for the larger part to be clustered in the existing economic centres. Were in the past these centres, in a protected market, often located inland, after the European unification the economic centre of gravity will be even more central. Since the domestic economic centres are no longer that important, European centres - or rather a (single) European central area - will become more and more important. This might imply that peripheral regions will become even more peripheral in character, thereby increasing interregional differences.

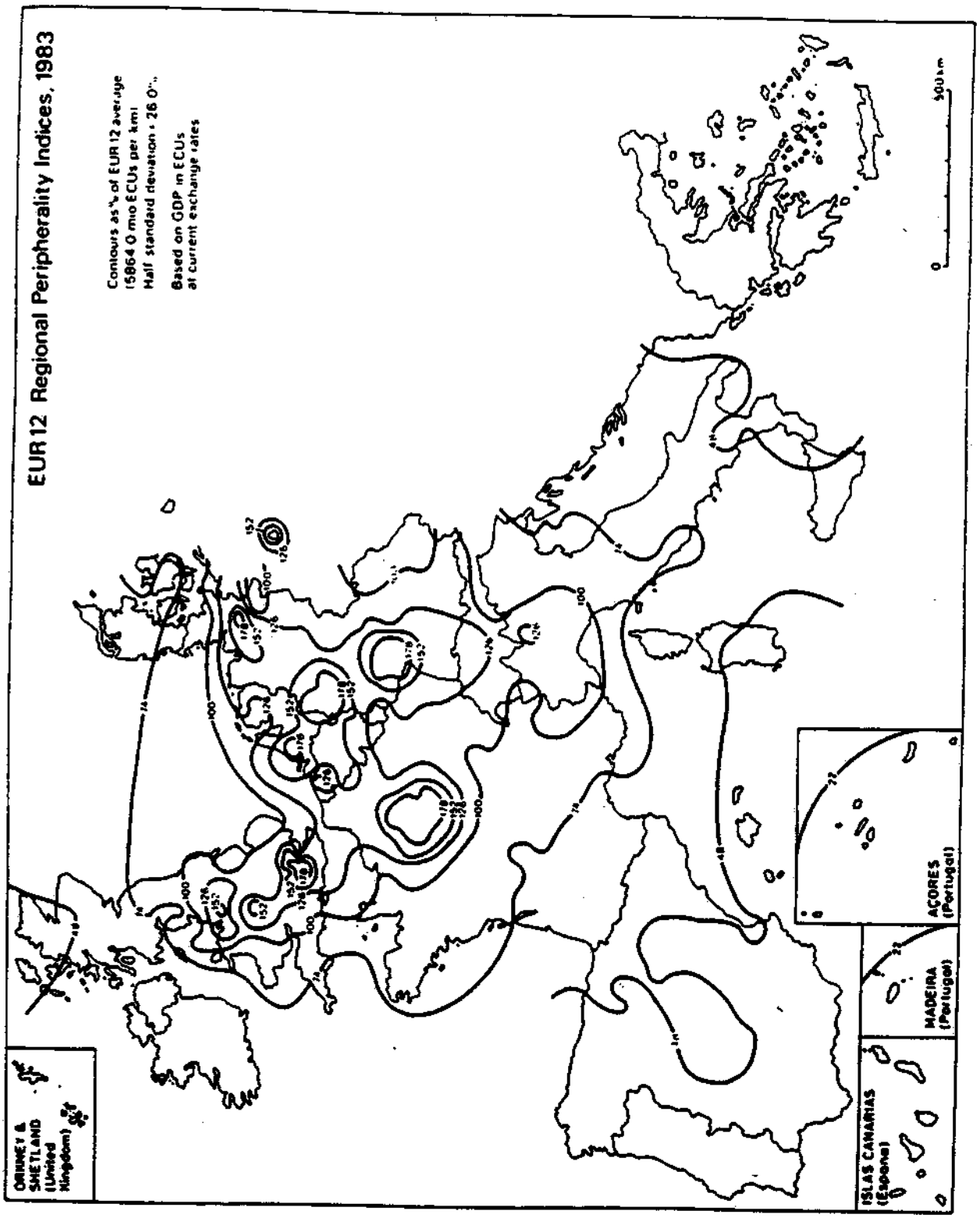
Indeed it is sometimes noticed that peripheral regions of the community are not well placed to benefit from the potential gains of the integration. In this context some

analysis exist that are exclusively concerned with island or superperipheral regions. Without a positive stimulus the gap between these islands and their mainland is likely to grow (Ernst and Young, 1991). In this view it is hypothesized that there are distinct factors which may lead to adverse effects from the completion of the single market, such as:

- an increased tendency to centralize
- increased competition and restructuring of industry

This increased tendency to centralize is also noticed by some other authors (Maggi and Nijkamp 1991 and RECLUS 1989). They identify a highly developed area of intensive economic development stretching from the South-East of England to the North of Italy which is called the European 'banana' (see map 2). It is believed that most regions outside this 'banana' will face development problems because of an increasing concentration of high technology industries, service sector activities and the necessary infrastructure in regions located within this 'banana'.

Map 2. The European 'banana'




Map 3. ECU-Based EUR 12 Regional Peripherality Index Contours, 1983
Source: CEC

The previous observations suggest that **peripheral** areas (including islands regions and border regions) will face great difficulties in reaping the full fruits of European integration. The Commission of the European Communities (CEC) has defined a so-called peripherality index in order to measure the extent to which EC regions have access to economic activities dispersed over the Community. This index, which is essentially based on (lack of) accessibility, uses GDP for each region in relation to its geographical distance to all other EC regions (see Map 3). It turns out that peripheral areas can be found in Greece, Ireland and Portugal, as well as in the Mezzogiorno and in Spain.

In general, the socio-economic profile of peripheral areas is weak in that educational and training facilities are relatively absent (leading to a shortage of qualified labour), R&D and technological innovation are under-represented (hampering an active role on an international market), and infrastructural connections and facilities are weakly developed (leading to lower business propensities to invest). In general, peripheral areas can be characterized by following the above distinction into **micro** (locational), **meso** (sectoral) and **macro** (general welfare) indicators (see Heckman and Kea 1992):

- **Micro factors**
- less homogeneous financial market
- less developed banking system
- higher labour costs per unit output
- inadequate (basic) infrastructure (or lack of infrastructure)
- lack of skilled labour
- few R & D activities
- low educational participation rate
- low economic growth
- longer distance to major demand and supply centres
- higher inaccessibility
- higher transport costs
- longer travelling times
- longer delivery times
- difficult access to information
- less possibilities for economies of scale due to:
  - limitation and dispersion of the regional market
  - long distance to concentrated central market
- absence of economies of agglomeration

- **Meso factors**
- production highly overrepresented in agriculture
- underrepresentation of industries and services
- in the primary and secondary sector, the phenomenon of 'underemployment' plays an important role. In these sectors many people work less than they would like. There is not sufficient work to employ the entire work force full

time. As a consequence, many members of the work force in these sectors could be removed entirely, without a fall in production.

- **Macro factors**
  - low income per capita
  - high unemployment rate
  - high population growth
  - high growth of the labour force

A special class of peripheral areas is called **super-peripheral regions**, which are characterized by **remoteness** while being also separated - as smaller islands - by the sea. Thus **insularity** is the most important feature of super-peripheral regions. The most important super-peripheral areas in the EC are: the Canary Islands, Madeira, Orkney and Shetland, Guadaloupe, Sicily, the Cyclades and the Aegean Islands. According to Heckman and Kea (1992) these super-periperal areas can be characterized by:

- **Smallness and insularity related characteristics**
  - less resources / limitations in natural resource endowments
  - limited land area / lack of cultivated land
  - limited access to capital and capital markets / dependence on aid and external institutions
  - limited regional market / small local market
  - insufficient know-how / no critical mass for initiating and sustaining technological innovation
  - lack of information / missing information networks
  - lack of entrepreneurial experience / lack of joint ventures and bilateral agreements
  - lack of institutions supporting economic development
  - insufficient labour / narrow range of local skills / qualitative discrepancies
  - fragile ecological structure / vulnerable physical environment with:
    - small genetic diversity
    - high danger of extinction of certain species
  - high energy costs (due to lack of local power plants or missing connection to the national grid),

so that as a consequence these island economies suffer from:

- insufficient possibilities for economies of scale
- insufficient possibilities for economies of agglomeration
- limited production / narrow industrial basis

- monocultural characteristics / dependence on a very narrow range of products / non-diversification of economic activity
- economic dependency.

▪ **Distance related characteristics**

- relative inaccessibility
- relative inapproachability
- long distance to a concentrated market
- long distance to main supply and demand centres
- higher transportation costs due to:
  - sea or air transport / high transshipment costs
  - long distance
  - absence of a critical mass (diseconomies of scale in transport)
  - necessary modal switch (i.e. from boat to truck)
  - absence of an adequate infrastructure
- higher energy costs (due to long distance transport of energy if connected to the national grid or when importing oil or other sources of energy)
- centralized government / lack of engagement with political scene / less political power thus less scope for policy making

so that super-peripheral areas are characterized by:

- low competitiveness
- less possibilities for export (due to higher transportation costs)
- more expensive import (due to higher transportation costs)
- weak regional balance of payment.

The empirical part of our paper will focus on a particular case study, viz. the super-peripheral region of Lesbos, a Greek island in the Aegean Sea near Turkey. The case study will be described in Section 3. After having discussed the problems of this superperipheral region in the Greek context, we will next pay attention to the identification of appropriate policy strategies in a triple-layer European setting, while taking into consideration the above trichotomy between micro-meso-macro factors.

## 3. Description of the Case Study

As mentioned above, our case study will concern the Greek island Lesbos. First, we will give some information on Greece as a **peripheral country** in the EC, while next we will pay some more attention to the island of Lesbos as a **super-peripheral** region.

**Greece**

Apart from airline connections, the main connections between Greece and other EC countries run nowadays via Patras - Brindisi/Bari by ferry. Especially after the collapse of the former republic of Yugo-Slavia the road connections have become very unreliable.

Several factors have to a large extent influenced the development of the Greek State. Among them the most important factors are (see Blue Plan Greece):

- the fragmentation of the territory with mountains and a multitude of islands. About 80 percent of the territory is mountainous, only about 30 percent of the land is arable and no rivers are navigable. Islands constitute about 20 percent of the land area and host 14 percent of the Greek population;
- inhibiting access and communication;
- the gradual incorporation / liberation of the various regions. The latest territorial expansion dates back to 1949 when Greece took over from Italy the island of Rhodes;
- the inflow of over one million refugees from Asia Minor following the Balkan wars;
- damages caused by World War II;
- overconcentration of power in the central Administration (and Athens).

Regional policy in Greece has been the outcome of long term economic and regional plans as well as master plans. They were usually approved and partially implemented by decision-makers of the Ministry of Coordination. The scope and objectives of those regional master plans were aiming towards the promotion of alternative growth poles for counterbalancing the already existing Athens and Thessaloniki overcongested urban industrial centres. It was hoped that developing such new growth poles would generate positive stimuli, which in turn would diminish regional disparities. Although the intensions of regional policy-makers have been to encourage decentralized industrial development away from the major industrial/urban complexes, the lack of infrastructure outside the main centres and the attraction forces caused by economies of agglomeration have contributed to the emergence of strong industrial rings around the already established industrial poles. In spatial terms the outcome was a S-shaped development axis: an urban-industrial expansion of cities along the North-South axis linking Kavala-Thessaloniki-Katerini-Larissa-Volos-Lamia-Athens-Elefsis-Korinth-Patras.

Along with this spatial development pattern regional disparities have gradually increased. At this stage we can conclude that during the development of alternative growth poles little attention was paid to the fragmentation of the country as well as to the relatively sizeable amounts of isolated areas.

More recently, much emphasis has been placed on small-scale and local development on the basis of the indigenous development potential of regions. The main elements of an indigenous development policy may be classified as follows (Konsolas 1989):

- implementation of a policy favourable to the integration of modern technology and the adoption of a series of innovations in the local production process. The framework of such a policy includes:
  - technological support for small and medium scale enterprises which aim at the production and commercialization of new competitive products and the penetration of international markets;
  - access by small and medium scale enterprises to research and development centres situated outside their own locality, e.g. to universities, research centres, etc.;
  - establishing organizations specializing in the provision of technical assistance to local enterprises in implementing new technologies;
  - the establishment of scientific research centres and local enterprises;
- support for local entrepreneurial efforts whether private, municipal or intermunicipal;
- the mobilization of the local population in an effort to ensure its participation in the formulation and implementation of development efforts (given the strong relationship between endogenous development and decentralized participatory planning).

We will now take a short look at the three strategic research angles, i.e., **micro**, **meso** and **macro** in the next section, where they will be used for a more comprehensive evaluation.

At the **micro** level of firm behaviour, economic potential and locational advantages, we may conclude that Greece has in general a weakly developed infrastructure, a situation which is aggravated by its island economy. Nevertheless, maritime transport is fairly advanced, while also regional airline connections are playing an important role. Road and railway connections however, are far below European standards. This means that the country as a whole does not offer many competitive advantages for new firms. This situation is worsened by the low expenditures on R&D (as a percentage of GDP, Greece has the lowest figures among EC countries; see Heckman and Kea 1992). Furthermore, despite many efforts also educational and vocational training is far below the European average.

Regarding the **meso** level of sectoral developments it should be noted that the traditionally strong primary sector (agriculture, fishery, forestry) has lost its position in the past decades. In the secondary sector the achievements have - relative to the average Europe developments - not been impressive due to a low productivity, lack of vertical integration, weak quality control and absence of product specialization. The tertiary sector has gained more importance, although the productivity is not yet very high. But the lack of adequate local producer services, the lack of the entrepreneurial dynamics and venture capital, the poor network infrastructure, and the strong dominance of the public sector in Greece have led to bleak prospects for the tertiary sector.

At the **macro** level the unemployment rates are still very high, while GDP figures per capita remain low. This means that after the full completion of the internal EC market Greece will face fierce competition from abroad.

It seems plausible that without an active economic development policy (i.e., a **policy off** scenario) Greece will be facing major problems on its labour market, in the industrial sector and in all activities which through their isolated location cannot be fully competitive. This holds in particular for the Greek islands. One of them, the island of Lesbos, is the subject of our case study and will be discussed in slightly more detail.

**Lesbos**

Lesbos is a typical example of a super-peripheral area, with a declining population share in the national population statistics and also with a declining GDP per capita. The weakening position of Lesbos is caused by the development of the Greek communication and transport network system (i.e., emphasis on the Athens and Thessaloniki complexes, the development of large scale cargo vessels and ferries serving only the main capital cities on islands, and the relative vulnerability of an island economy with respect to new activities on the mainland), the centralized development policy of Greece (discouraging small scle self-reliance initiatives), the institutional centralization (neglecting peripheral areas) and demographic developments (notably emigration of a young labour pool to more central areas).

At the **micro** level of development the locational conditions do not favour high education and training, nor investments in R&D and new technologies. The infrastructure on the island is weakly developed (inter alia as a result of the mountainous character of the island). In general, the transport connections with the mainland are not very advanced (although not inferior compared to other islands). The (tele)communications and information sector is by the means well developed.

Regarding the **meso** level it should be noted that the sectoral structure of Lesbos differs significantly from that of Greece. The primary sector is still rather important, the industrial sector is relatively small, while the tertiary sector is quite well developed (through trade, communications, private and public services etc.).

At the **macro** level we observe outmigration from the island, relatively low income figures and relatively high unemployment figures.

As a result, we may conclude that without an active regional development policy (i.e., a business-as-usual policy) Lesbos will be facing severe developmental problems, such as lack of regional competitiveness, a weak educational system, lack of qualified labour, insufficient R&D and innovation, and a weak infrastructure network. This would lead to declining economic activities, a shift of economic activities to the mainland, a vulnerable primary and secondary sector, high exodus rates, an ageing population and rising disparities between Lesbos and Greece (and between Lesbos and the European regional average).

Therefore, we might expect a further diverging income and unemployment development in Lesbos, if things remain the same. This perspective is rather pessimistic, but nevertheless stresses once more the need of integrated and balanced policies. If such policies are really developed and pursued, the island has many more prospects. The European integration process should be envisaged as a major opportunity to make a great leap forward to a higher income and a lower unemployment. In the next section we will develop a methodology for a multi-layer policy analysis in this context.

## 4. Methodology for Policy Evaluation in a Triple-layer European Regional Development Configuration

In this section we will present the general methodology for regional policy analysis in the three-tier competence structure (EC, Greece, Lesbos) for regional development strategies, using a **multi-criteria analysis** for identifying a most appropriate level of policy initiative for the island of Lesbos. Next, in Section 5 we will check for regional policy coherence by using a **critical success factor** (CSF) analysis based on a so-called **pentagon prism**, respectively.

In previous parts we have pointed out the consequences of the ongoing European integration, seen from different policy perspectives and under a so-called business-as-usual (or policy-off) regime for both Greece and Lesbos. These policy-off scenarios will act as the starting points for designing policy scenarios which we will discuss hereafter. They lead us to the following hypotheses:

- on a European level we may expect a further centralization of economic activities. Due to market forces, the economic activities tend to be clustered in a geographical restricted area which is located in the European centre, (e.g., the 'European banana'). As a result, the disparities between central and peripheral regions may increase.
- on a Greek level, centralization of economic activities may be expected as well. The market forces and government policies can induce the clustering of economic activities in the regions along the Greek S-corridor, as a result of which the disparities between the Greek mainland (regions along the S-corridor) and the Greek islands (e.g., Lesbos) will increase.
- on a Lesbian level we may expect diminishing economic activities. Factors associated with smallness, insularity and remoteness and specific characteristics of the island (e.g. the agricultural orientation on olive production or the absence of a strong industrial basis) may cause economic activities or production factors to move to the mainland or places elsewhere in the EC. One may even expect a new outmigration wave like the one that started after World War II. The outcome of such a process will likely be an increase in socio-economic disparities between Lesbos and the Greek mainland, and between Lesbos and the EC.

Furthermore, it can be argued that nowadays all European regions are facing the challenges posed by the emergence and dominance of the human-capital intensive 'knowledge industry' and its pervasive impact on all sectors of economic activity. Bearing this in mind it seems plausible that for the (super-peripheral areas, roughly spoken, only two options are left. Either they can try to attract the knowledge-intensive industries by offering a variety of incentives, or they can try to support areas of diffused industrialisation, e.g. industrial districts of closely interdependent small firms applying the scientific and culturally creative elements of contemporary production techniques, without being dependent on a head office, or specialized industries located in the core regions. Because of the fact that knowledge intensive industries tend to have a need for the kind of infrastructure that only few urban centres can

provide, attention may be given to the second option. This option is however, very demanding in terms of infrastructural provision, common (public) services, human capital resources and local (positive) intervention schemes for the fostering of networks. In addition, it is based upon local mobilisation and self-reliance. Thus, the policy power of local authorities has to be promoted in order to enable a bottom-up approach.

Now the question is whether it is possible to design and select scenarios that favour a balanced regional development in all three (micro, meso, macro) aspects while reducing interregional disparities. Thus, the implementation of such scenarios should result in reducing the disparities in per capita income and unemployment rates (corrected for 'hidden unemployment') between Lesbos and the Greek mainland as well as between Lesbos and the rest of Community.

In the post war period the bulk of regional planning was geared to the geographic redistribution of economic growth and employment. Nowadays regional policy has to address to the challenge of the overall stagnation and unemployment problems as well as to their regional distribution.

The consolidation of a single market poses new questions for all policies, particularly for regional policies. The transition towards market orientation and European competitiveness will require new methodological directions in which a meaningful blend has to be found between allocative efficiency, distributional equity and environmental spill-overs in a highly dynamic regional setting of European countries. Each policy maker has to compose a meaningful blend, thereby being aware of the fact that certain policies, if implemented at the same time, are, to some extent, mutually exclusive; in other words, there seems to be a trade-off between allocative efficiency and distributional equity. In Figure 1 we have visualized this policy trade-off. The corners of the triangle represent:

- Efficiency: refers to production (this also includes production of goods such as infrastructure and services such as transport, education and finances);
- Equity: refers to population and income (this leads in combination with efficiency and conservation to the standard of living);
- Conservation: natural goods and historical and cultural heritage.

Each corner of the triangle refers to an extreme policy scenario. In practice, each policy scenario will have its own unique point within the triangle. In the short run, policy scenarios tend to be mainly focused on the efficiency side of the triangle. Efficiency is however, not the final purpose of our scenarios. The main goal of our scenarios is also reducing the international and interregional disparities. Therefore, equity will be the key word in developing policy plans. It will be clear that a more egalitarian income and unemployment development can first and foremost be achieved by increased efficiency, while at the same time environmental standards are kept.

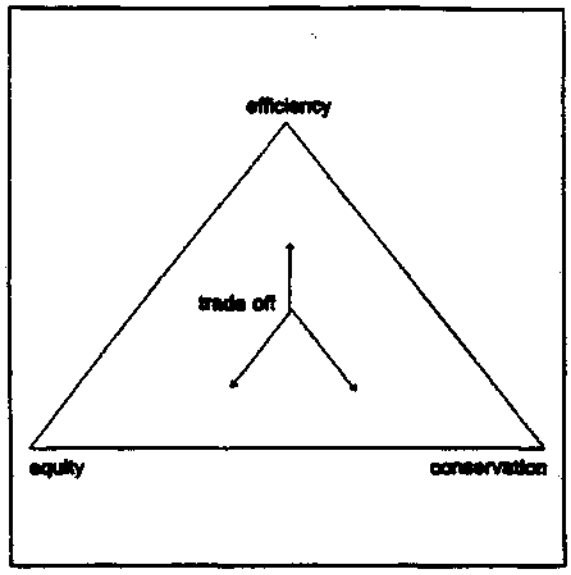



Figure 1. Trade-off triangle

Our analysis will be elaborated from the three abovementioned aspects (micro, meso, macro). Each aspect can next be subdivided according to the crucial evaluation factors. The **micro** level is, split up in education, R&D and infrastructure. The **meso** level is subdivided into the primary, secondary and tertiary sector. Policies on a **macro** level are subdivided in income policies and employment policies. This is illustrated in Figure 2. Adequate policies always need time so that policies should be considered from the short, medium and long term perspective. The policy matrix is then of course getting more complicated. Accordingly, the matrix can be subdivided in more cells resulting in Figure 3.

| level | factors | policies |
|---|---|---|
| micro | education | |
| | R&D | |
| | infra-structure | |
| meso | primary | |
| | secondary | |
| | tertiary | |
| macro | migration | |
| | employment | |

Figure 2. Multi-layer policy evaluation matrix

| level | factors | time | policies |
|---|---|---|---|
| micro | education | short | |
| | | medium | |
| | | long | |
| | R&D | short | |
| | | medium | |
| | | long | |
| | infrastructure | short | |
| | | medium | |
| | | long | |
| meso | primary | short | |
| | | medium | |
| | | long | |
| | secondary | short | |
| | | medium | |
| | | long | |
| | tertiary | short | |
| | | medium | |
| | | long | |
| macro | migration | short | |
| | | medium | |
| | | long | |
| | employment | short | |
| | | medium | |
| | | long | |

Figure 3. Multi-layer multi-period dynamic policy evaluation matrix

Things become even more complicated when we bear in mind that we can take policy initiatives at a European, a Greek and a Lesbian level. For each regional scale, we have then to fill in the policy matrix shown in Figure 4, so that a comprehensive policy evaluation matrix can be designed.

In Heckman and Kea (1992) an extensive description of all scenarios related to the above multi-layer multi-period and multi-actor policy evaluation matrix has been given, where a great deal of field work has been undertaken to operationalize this matrix. This will not be repeated here, but we only refer here to the final aggregate results put together here as ordinal information on the expected consequences of three competence levels (Europe, Greece, Lesbos).

| level | factors | time | Europe | Greece | Lesbos |
|---|---|---|---|---|---|
| micro | education | short | | | |
| | | medium | | | |
| | | long | | | |
| | r&d | short | | | |
| | | medium | | | |
| | | long | | | |
| | infra-structure | short | | | |
| | | medium | | | |
| | | long | | | |
| meso | primary | short | | | |
| | | medium | | | |
| | | long | | | |
| | secondary | short | | | |
| | | medium | | | |
| | | long | | | |
| | tertiary | short | | | |
| | | medium | | | |
| | | long | | | |
| macro | migration | short | | | |
| | | medium | | | |
| | | long | | | |
| | employ-ment | short | | | |
| | | medium | | | |
| | | long | | | |

Figure 4. Multi-layer multi-period multi-actor policy evaluation matrix

In a condensed form, the policy evaluation matrix for the **micro** aspects is the following form (rank numbers mean: the higher the better):

**Impact matrix: micro profile**

| | Crit 1 | Crit 2 | Crit 3 |
|---|---|---|---|
| Europe | 3 | 1 | 1 |
| Greece | 2 | 2 | 2 |
| Lesbos | 1 | 3 | 3 |

If we now apply a multi-criteria analysis (MCA) method to the above table, we will be able to identify an optimal ranking of policy initiatives at the three above-mentioned levels (Europe, Greece, Lesbos). We will use here the qualitative regime analysis (for details see Nijkamp et al. 1990). We will use the following weight:

| | Weight vector |
|---|---|
| Crit 1: Qualified labour | 1 |
| Crit 2: R&D climate | 1 |
| Crit 3: Networks & consistency | 1 |

Evaluating now the micro profile for Europe, Greece and Lesbos leads eventually to the following result:

**MCA results for the micro profile**

| Region | MCA score |
|---|---|
| 1. Lesbos | 3 |
| 2. Greece | 2 |
| 3. Europe | 1 |

Thus Lesbos obtains the highest score on the micro profile, while Greece is second best and Europe third. This result will be used in the MCA evaluation of the overall performance later on.

As mentioned above, four subcriteria have been used to describe the meso profile. In two stages we can again calculate the scores of each alternative on the meso profile.

**Impact matrix: meso profile**

| | Crit 1 | Crit 2 | Crit 3 | Crit 4 |
|---|---|---|---|---|
| Europe | 1 | 1 | 2 | 1 |
| Greece | 1 | 2 | 2 | 2 |
| Lesbos | 2 | 2 | 1 | 3 |

The following weights are assumed now:

| | Weight vector |
|---|---|
| Crit 1: Product diversification | 2 |
| Crit 2: Sectoral structure | 3 |
| Crit 3: Added value | 1 |
| Crit 4: Productivity | 2 |

The MCA results for the meso aspects show that Lesbos again reaches the highest score. Greece and Europe follow in the same order as the one found for the micro profile.

**MCA results for the meso profile**

| Region | MCA score |
|---|---|
| 1. Lesbos | 3 |
| 2. Greece | 2 |
| 3. Europe | 1 |

The **macro** profile is identified by means of scores on two criteria: income per capita and unemployment rate. Here the following impact matrix is assessed:

**Impact matrix: macro profile**

| | Crit 1 | Crit 2 |
|---|---|---|
| Europe | 3 | 1 |
| Greece | 1 | 3 |
| Lesbos | 2 | 2 |

Here we will use the following weight vector:

| | **Weight vector** |
|---|---|
| Crit 1: Income | 1 |
| Crit 2: Unemployment | 1 |

All scenario's (the European, the Greek and the Lesbian scenario) appear to obtain here the same score in he MCA analysis: at the macro level no single scenario outranks another scenario.

**MCA results for the macro profile**

| Region | MCA score |
|---|---|
| 1. Lesbos | 1 |
| 1. Greece | 1 |
| 1. Europe | 1 |

By combining now the information from the three above tables with MCA results, we can eventually determine which policy alternative is to be preferred.

**Impact matrix: overall performance**

| | Crit 1 | Crit 2 | Crit 3 |
|---|---|---|---|
| Europe | 1 | 1 | 1 |
| Greece | 2 | 2 | 1 |
| Lesbos | 3 | 3 | 1 |

We will assume here the following weight set:

| | **Weight vector** |
|---|---|
| Crit 1: Micro profile | 1 |
| Crit 2: Meso profile | 1 |
| Crit 3: Macro profile | 1 |

Then the following overall MCA results are obtained:

**Overall MCA results**

| Region | MCA score |
|---|---|
| 1. Lesbos | 3 |
| 2. Greece | 2 |
| 3. Europe | 1 |

As we can see, the Lesbian policy scenario obtains the highest score. The Greek scenario is the second one to be preferred. Finally, the European scenario is ranked on the third position. This means essentially a plea for a self-reliance, bottom-up and small and medium size (SMS) type of economic development for Lesbos, with support (national and supra-national) for all conditions ( social overhead capital) that are necessary to fulfil this role.

In conclusion, from an overall point of view, policies at the Lesbian level of scale should be preferred. At the micro and meso level the Lesbian scenario also appears to rank highest, whereas at the macro level all scenarios reached the same score. This leads to the following policy conclusions.

Lesbian authorities should implement their own micro policy, focused on improving crucial factors of location. These micro factors refer to improvement of the regional economic potential. Better education, more R&D activities and a better infrastructural system can strengthen the regional competitive position. Thus, the Lesbian micro policy should bring about the development of the endogenous growth potential of the island. An adequate micro policy should however, be completed with meso policies which will bring about sectoral shifts needed for the island to compete with other Community members (on the internal market). Finally, from the MCA results, we can conclude that macro policies should not be implemented exclusively at the Lesbian level.

An MCA methodology can be very useful in evaluating policies on their external coherence. We have drawn the conclusion that coordination and cooperation between different policy levels is a must in developing and pursuing successful policies. Besides this external coherence, internal coherence is equally important. Policies that lack internal consistency are bound to fail. In the following section we will, on the basis of five success categories, check the policy scenarios on their internal coherence, and subsequently offer strategic suggestions on how to reach a optimal policy in terms of internal policy coherence.

## 5. Internal Policy Coherence

For a successful implementation of policies an ex-ante evaluation of the internal coherence is needed. One of the ways to evaluate this is by checking it through a set of critical success categories: each policy must meet certain standards in each category. Nijkamp and Vleugel (1991) show in their Pentagon model a complex of critical success factors which are extremely important in decision making (see Figure 5). Accordingly, the following five categories of success categories can be discerned:

- HARDWARE: all elements of the physical infrastructure (e.g., road network, telecommunications, educational facilities, electricity grid etc.);

- SOFTWARE: aspects of human resources, social environment, logistics and informatics. Examples are the quality of the educational system, the quality and quantity of the labour supply, (connection to) information networks, technological diffusion, etc.;

- ORGWARE: organization ware contains all policy issues in the field of organizational matters and the political system. Examples are the organization of the national government (departmental division), and the decentralisation of the power of decision (the responsibility given to the local and regional authorities);

- FIN WARE: financial ware contains all policy issues in the field of financial arrangements and fundings. Here one can think of subsidies, investments incentives, taxes, reforms of structure funds, etc.;

- ECOWARE: all issues related to the ecological system. Examples are sewage systems, pollution, carrying capacity of the environment etc.

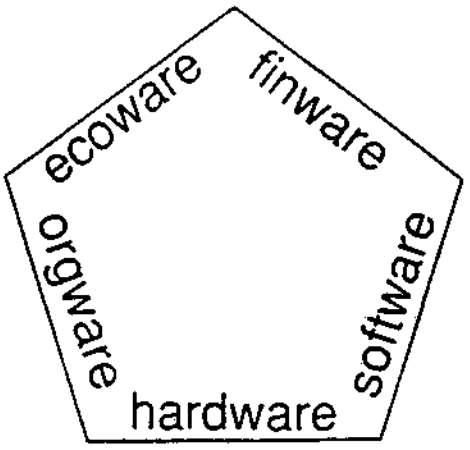



Figure 5. The Pentagon model

A successful policy has to be meet the standards of all five categories mentioned in the pentagon model. The absence or ignorance of one of these success factors can generate disturbance in the policy implementation as a result of which the policy goals will not be achieved.

Heckman and Kea (1992) have given a fairly extensive assessment of the Pentagon prism at all three levels (Europe, Greece, Lesbos). Their results are summarized in the following table:

**Evaluation by means of internal policy coherence of the Pentagon model**

| | hardware | software | orgware | finware | ecoware |
|---|---|---|---|---|---|
| Europe | + + | + | - | + + | + + |
| Greece | + | + | + | + | + |
| Lesbos | - | + + | + + | - | + |

According to the pentagon evaluation, none of the scenarios reached an optimum in terms of policy coherence. Therefore a multi-faceted policy scenario seems to be a final plausible solution. Such a scenario calls for policy steps taken on three levels: a European level, a Greek level and a Lesbian level. Hardware, finware and ecoware policies should be taken on a European level; thus for these success categories a kind of top-down planning will emerge. Orgware and software policies should be pursued on a Lesbian level; thus for these policies a kind of bottom-up planning will emerge (using the endogenous potential advocated above). The Greek level should function as an intermediary level.

This means that 'partnership' must the key word in developing adequate policies. On the one hand, this notion refers to cooperation between different authorities: the European, the national and the regional authorities. On the other hand, it also refers to the synergetic effects that will occur as a consequence of such cooperation.

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